B4 wherein said polynucleotide is useful in the detection of ovarian cancer.

REMARKS

Applicants submit this response to the Office Action dated December 4, 2001, Paper No.11. Claims 3, 4, 6-8, 13, 22, and 65 are currently under examination. Following the above amendments, and as further discussed below in the context of the Examiner's rejections, claims 3, 13, 22, and 65 have been amended. Applicants submit that each of these amendments is supported in the application as filed and no new matter has been added. It is also noted that each of the above amendments is made without prejudice to prosecution of any or all subject matter modified by this amendment in a related divisional, continuation and/or continuation-in-part application. Please find included with this response a copy of the Information Disclosure Statement complying with 37 CFR 1.98(a)(2).

Rejection Under 35 U.S.C. § 101/112 (Utility)

Claims 3, 4, 6-8, 13, 22, and 65 stand rejected under 35 U.S.C. § 101 as allegedly the claimed invention lacks patentable utility due to its not being supported by either specific and/or substantial utility or a well established utility. Specifically, the Examiner alleges that the claimed nucleic acid sequence, SEQ ID NO:198, is not supported by a specific asserted utility because the disclosed use of this composition is not specific and is generally applicable to any nucleic acid. Applicants respectfully traverse this rejection.

Applicants have identified a specificity associated with the claimed polynucleotide, *i.e.*, ovary tumor-specificity, that is more than sufficient to establish utility under 35 U.S.C. §101. In the instant application, the claimed polynucleotide, SEQ ID NO:198, was identified using the POTS 2 subtraction library as described on page 91, lines 8 through 17 and Table VII, page 99 through page 100. The POTS 2 library was generated using tracer cDNA derived from primary ovarian tumor tissue subtracted against a selection of normal tissues. Further, on page 6, line 19 through page 7, line 3, ovarian tumor proteins, and the polynucleotides encoding said proteins, are identified upon their increased level of expression in ovarian tumor samples. More particularly, at page 6, line 19, through page 20, line 3, the specification discloses that polynucleotides of the invention are "expressed at a level that is at

least two fold greater than the level of expression in normal tissues." Accordingly, the ovarian tumor specificity of SEQ ID NO:198 was clearly disclosed in the specification as filed. As set forth for the Examiner's convenience in the attached Declaration of Steve Fling, Ph.D., using Real-Time PCR analysis, SEQ ID NO:198, clone 57886 or O590S, was shown to be over-expressed in over 65% of ovarian tumor samples tested, 100% of tumor samples derived from SCID mice, and 100% of ovarian tumor cell lines tested, when compared to normal tissue. Little or no expression was observed in normal esophagus, spinal cord, bladder, colon, liver, PBMC (activated or resting), lung, skin, small intestine, stomach, skeletal muscle, pancreas, dendritic cells, heart, spleen, bone marrow, thyroid, trachea, thymus, bronchia, cerebellum, ureter, uterus and peritoneum epithelium. Further, the level of expression observed in the ovarian tumor samples was several fold higher than that seen in normal tissues.

Thus, in view of the description in the applicants' specification as originally filed, and as further confirmed by the attached Declaration of Steve Fling, Ph.D., applicants submit that one of ordinary skill in the art would fully recognize that SEQ ID NO:198 has diagnostic utility on the basis of its ovary-tumor associated expression profile. Reconsideration and withdrawal of the rejection is respectfully requested.

Rejection Under U.S.C. §112, first paragraph (written description)

Claims 3, 4, 6-8, 13, 22, and 65 stand rejected under U.S.C. § 112, first paragraph, as allegedly containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed. Specifically, the Examiner alleges that the specification only discloses SEQ ID NO:198, and not the broader genus of sequences claimed.

Applicants respectfully traverse this rejection. The claimed invention is currently directed to isolated polynucleotides comprising SEQ ID NO:198, complements of SEQ ID NO:198, sequences having at least 50 contiguous residues of SEQ ID NO:198, and sequences having at least 90% identity to SEQ ID NO:198. The instant specification discloses that SEQ ID NO:198 represents a polynucleotide sequence encoding an ovarian tumor antigen. For instance, in Example 1 at page 91, lines 8 through 17 and Table VII, page 99 through page 100, SEQ ID

NO:198 was identified using a subtraction library wherein the tester cDNA was derived from a primary ovarian tumor and the driver cDNA was obtained from normal tissues. Having identified SEQ ID NO:198 using this method, the sequence was analyzed using Real Time PCR, the results of which clearly establish that SEQ ID NO:198 is over-expressed in ovarian tumor samples relative to normal tissues. Consequently, the skilled artisan would understand that SEQ ID NO:198 is a sequence having an ovarian tumor-associated expression profile.

The U.S.P.T.O. has specifically indicated that possession of an invention is more readily established, and correspondingly greater claim breadth is permissible, where an applicant discloses functional and/or descriptive information concerning the specie(s) in an application, *e.g.*, a distinguishing identifying characteristic common among the members of a claimed genus (see *Guidelines for Examination of Patent Applications Under the 35 U.S.C. § 112, para. 1, "Written Description" Requirement*- Federal Register: January 5, 2001, (Volume 66, No. 4, pgs 1099-1111). For example, at the bottom of pg. 1105, the Guidelines state that, "(an) adequate written description of an invention may be shown by any description of sufficient, relevant, identifying characteristics so long as a person skilled in the art would recognize that the inventor had possession of the claimed invention."

Applicants submit that their disclosure more than adequately meets this burden. In the context of the presently claimed invention, the skilled artisan would recognize that the ovary tumor-associated expression demonstrated for SEQ ID NO:198 represents a distinguishing characteristic common among the polynucleotides of the claimed invention. Further still, applicants have amended claims 3, 13, 22, and 65 to incorporate this identifying characteristic into the claims currently under consideration, such that a polynucleotide of the current invention is one that is "useful in the detection of ovarian cancer ". Accordingly, applicants submit that the instant claims fully comply with the written description requirements of 35 U.S.C. § 112, first paragraph. Reconsideration of the Examiner's rejection is thus respectfully requested.

Rejection Under U.S.C. §112, second paragraph

Claims 3, 4, 6-8, 13, 22, and 65 are rejected under U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, the Examiner alleges

that claims 3, 4, 6, 13, 22, and 65 and dependent claims 7 and 8, are vague and indefinite as to what is meant therein by the limitation "the complement".

This rejection is respectfully traversed. Applicants submit that the skilled artisan, in view of the applicants' specification and in view of the general knowledge in the art, would have no difficulty understanding the metes and bounds of the presently claimed invention. For example, as defined in The Molecular Biology of The Cell, Third Ed. Garland Publishing, Inc., 1994, page G-6,:

> "Two nucleic sequences are said to be complementary if they can form a perfect base-paired double helix with each other."

Moreover, there is nothing in the applicants specification that would lead the skilled artisan to understand the term "complement" by anything other than this convention, art-recognized definition. Therefore the polynucleotide sequences of claims 3, 4, 6, 13, 22, and 65 and dependent claims 7 and 8, encompass the complete (*i.e.,* 100%) complements of the claimed polynucleotide sequences, *i.e.,* sequences completely complementary to SEQ ID NO:198, sequences completely complementary to polynucleotide sequences comprising at least 50 contiguous amino acids of SEQ ID NO:198, and sequences completely complementary to sequences having at least 90% identity to SEQ ID NO:198. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 65 is also rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, the Examiner alleges that the claim is vague and indefinite as to what is meant therein by the limitation of "a diagnostic reagent for use in a polymerase chain reaction or hybridization assay" (step b). Applicants have amended claim 65 to recite: "(b) a detection reagent for use in a polymerase chain reaction or hybridization assay". Support for this amendment may be found, for example, on page 87, line 16 through page 88, line 11. Reconsideration and withdrawal of the rejection is respectfully requested.

Rejection Under U.S.C. §102

Claims 3, 4, 6-8, and 22 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by the nucleic sequences of GenBank accession numbers AI023799 and AI307373.

Specifically, the Examiner alleges that the two GenBank accession numbers are nucleic acid sequences that anticipate the limitations set forth in claims 3, 6, and 22.

Applicants submit that the current amendments to claims 3 and 22, clarifying that the polynucleotides have at least 90% identity to the entirety of SEQ ID NO:198, in addition to the amendment removing the phrase "sequences consisting of at least 50 contiguous residues of SEQ ID NO:198" obviate this ground of rejection. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 65 is rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent Nos. 5,585,232 (December 17, 1996) and 5,589,377 (December 31, 1996).

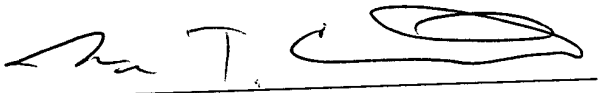
Applicants submit that the current amendment to claim 65, reciting "A diagnostic kit for the detection of ovarian cancer, comprising:", obviates this ground of rejection. Applicants submit that U.S. Patent Nos. 5,585,232 and 5,589,377 both provide methods and diagnostic kits for determining the toxicity of a compound using sequences that are unrelated to the claimed polynucleotides. Claim 65 is currently drawn to a diagnostic kit for the detection of ovarian cancer. Applicants submit that nowhere do U.S. Patent Nos. 5,585,232 or 5,589,377 disclose a diagnostic kit useful for the detection of ovarian cancer much less that applicants' claimed sequences are useful in this context. Reconsideration and withdrawal of the rejection is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version With Markings to Show Changes Made.**"

Favorable reconsideration and allowance of the pending claims are respectfully requested. The Examiner is invited to contact the undersigned with any questions, concerns or suggestions pertaining to this communication.

Respectfully submitted,

Seed Intellectual Property Law Group PLLC



William T. Christiansen, Ph.D.
Registration No. 44,614

701 Fifth Avenue, Suite 6300
Seattle, Washington 98104-7092
Phone: (206) 622-4900
Fax: (206) 682-6031

210121.484C3/259719_1.DOC

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claims 3, 13, 22, and 65 have been amended as follows:

3. (Amended) An isolated polynucleotide comprising a sequence selected from the group consisting of:

(a) the polynucleotide recited in SEQ ID NO:198;

(b) complements of the foregoing polynucleotide; and

~~sequences consisting of at least 50 contiguous residues of SEQ ID NO:198; and~~

(c) sequences having at least 90% identity to the entirety of SEQ ID NO:198,

wherein said polynucleotide is useful in the detection of ovarian cancer.

13. (Amended) A composition comprising:

(a) an isolated polynucleotide comprising a sequence selected from the group consisting of:

(i) the polynucleotide recited in SEQ ID NO:198;

(ii) complements of the foregoing polynucleotide;

(iii) sequences consisting of at least 50 contiguous residues of SEQ ID NO:198; and

(iv) sequences having at least 90% identity to SEQ ID NO:198; and

(b) a physiologically acceptable carrier,

wherein said polynucleotide is useful in the detection of ovarian cancer.

22. (Amended) An isolated polynucleotide encoding a fusion protein wherein said polynucleotide comprises a sequence selected from the group consisting of:

(a) the polynucleotide recited in SEQ ID NO:198;

(b) complements of the foregoing polynucleotide; and

~~(c)sequences consisting of at least 50 contiguous residues of SEQ ID NO:198;~~

~~and~~

(c) sequences having at least 90% identity to the entirety of SEQ ID NO:198, wherein said polynucleotide is useful in the detection of ovarian cancer.

65. (Amended) A diagnostic kit for the detction of ovarian cancer, comprising:

(a) an oligonucleotide comprising 10 to 40 nucleotides that hybridize under moderately stringent conditions to a polynucleotide comprising a sequence selected from the group consisting of:

(i) the polynucleotide recited in SEQ ID NO:198;

(ii) complements of the foregoing polynucleotide;

(iii) sequences consisting of at least 50 contiguous residues of SEQ ID NO:198; and

(iv) sequences having at least 90% identity to SEQ ID NO:198; and

(b) a ~~diagnostic~~ detection reagent for use in a polymerase chain reaction or hybridization assay,

wherein said polynucleotide is useful in the detection of ovarian cancer.